

Maximilien PÉROUX

ADDRESS:

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Department of Mathematics
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RESEARCH INTEREST:

Algebraic topology. In particular, topological data analysis, stable homotopy theory and higher category theory.

ACADEMIC APPOINTMENTS

2020-Present | **Hans Rademacher Instructor of Mathematics**, UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA, USA.

EDUCATION

2015-2020 | **Doctor of Philosophy (PhD) in Mathematics**, UNIVERSITY OF ILLINOIS AT CHICAGO (UIC), Chicago, IL, USA. Advisor Prof. Brooke SHIPLEY.
PhD thesis: *Highly structured coalgebras and comodules*.

FALL 2014 | **Visiting Student**, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT), Cambridge, MA, USA. Supervised by Prof. Haynes MILLER.
Exchange program for the Master's thesis: *Cofiber sequences of Thom spectra over $B(\mathbb{Z}/2)^n$* .

2013-2015 | **Master of Science (MSc) in Fundamental Mathematics**, ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL), Lausanne, Switzerland. Advisor Prof. Kathryn HESS

2010-2013 | **Bachelor of Science (BSc) in Mathematics**, ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE (EPFL), Lausanne, Switzerland.

PUBLICATIONS AND PREPRINTS

7. | M. PÉROUX, **A monoidal Dold-Kan correspondence for comodules**, [ArXiv:2108.04835](https://arxiv.org/abs/2108.04835) (submitted).
6. | H.Ö. BAYINDIR AND M. PÉROUX, **Spanier-Whitehead duality for topological coHochschild homology**, [ArXiv:2012.03966](https://arxiv.org/abs/2012.03966) (submitted).
5. | M. PÉROUX, **The coalgebraic enrichment of algebras in higher categories**, [ArXiv:2006.09408](https://arxiv.org/abs/2006.09408) (to appear in The Journal of Pure and Applied Algebra).
4. | M. PÉROUX, **Coalgebras in the Dwyer-Kan localization of a model category**, [ArXiv:2006.09407](https://arxiv.org/abs/2006.09407) (submitted).
3. | M. PÉROUX, **Rigidification of connective comodules**, [ArXiv:2006.09398](https://arxiv.org/abs/2006.09398) (submitted).
2. | J. BEARDSLEY AND M. PÉROUX, **Koszul duality in higher topoi**, [ArXiv:1909.11724](https://arxiv.org/abs/1909.11724) (submitted).
1. | M. PÉROUX AND B. SHIPLEY, **Coalgebras in symmetric monoidal categories of spectra**, Homology, Homotopy and Applications **21** (2019), no.1, 1-18.

AWARDS

SUMMER 2021 | **AMS-Simons Travel Grant**, AMERICAN MATHEMATICAL SOCIETY.

FALL 2019 | **Award for Graduate Research (AGR)**, UNIVERSITY OF ILLINOIS AT CHICAGO (UIC), Chicago, IL, USA.

TEACHING EXPERIENCE

2020-PRESENT | **Instructor**, UNIVERSITY OF PENNSYLVANIA, Philadelphia, PA, USA.
Math312: Linear Algebra for non-math majors (over 80 students). Math240: Calculus III (over 150 students). Math 370: Algebra (over 30 students). Math 810: Reading seminar on ∞ -categories.

SPRING 2019 | **Project supervisor**, UNIVERSITY OF ILLINOIS AT CHICAGO (UIC), Chicago, IL, USA.
Supervised an undergrad project on the Dold-Thom Theorem for a visiting French student at UIC.

- 2015-2020 | **Teaching Assistant**, UNIVERSITY OF ILLINOIS AT CHICAGO (UIC), Chicago, IL, USA.
Teaching Assistant as a grad student. Responsible of two or three classes per semester. Responsible for 20 students for each class. Classes: Calculus I, Calculus II, and Linear algebra for business.
- 2013 | **Humanitarian Project**, EMAHP : EPFL MATHEMATICAL HUMANITARIAN PROJECT, Lausanne, Switzerland.
A 2 week long Humanitarian trip to South Africa with 22 other EPFL math students. The goal was to introduce and to popularize basic mathematical notions through workshops for South African students from 4 to 18 years old.
- 2012-2013 | **Teaching Assistant**, EPFL, Lausanne, Switzerland.
Responsible for 30 students in Algebra (for Engineers) and General Topology (for Mathematician).

INVITED TALKS (SELECTED)

11. | **Coalgebras and comodules in stable homotopy theory**, *University of Warwick algebraic topology seminar*, (January 12th 2021).
10. | **Coalgebras and comodules in higher categories**, *University of Virginia Topology Seminar*, (March 5th 2020).
9. | **Rigidification of coalgebras and comodules in stable homotopy theory**, *Ohio State University Homotopy Theory Seminar*, (27th February 2020).
8. | **Rigidification of coalgebras and comodules**, *Purdue University Topology Seminar*, (January 15th 2020).
7. | **Rigidification of coalgebras and comodules**, *Northwestern University Topology Seminar*, (October 14th 2019).
6. | **Rigidification of coalgebras and comodules**, *University of Rochester Topology Seminar*, (October 9th 2019).
5. | **Coalgebras and Comodules in stable homotopy theory**, *AMS Sectional Meeting: Special Session on Homotopy Theory*, University of Wisconsin-Madison (September 14th 2019).
4. | **Coalgebras and Comodules in stable homotopy theory**, *Equivariant Topology & Derived Algebra*, NTNU (August 1st 2019).
3. | **Coalgebras in Algebraic Topology**, *LG&TBQ*, University of Michigan (June 10th, 2019).
2. | **Coalgebras and Comodules in stable homotopy theory**, *John Hopkins University Topology Seminar* (April 22th, 2019).
1. | **Homotopy theory for Coalgebras**, *University of Washington Topology Seminar* (April 11th, 2019).

CONFERENCES ATTENDED (SELECTED)

6. | **Higher Categories and Categorification**, Mathematical Sciences Research Institute (MSRI) (Feb 10-14, 2020).
5. | **AMS Sectional Meeting: Special Session on Homotopy Theory**, University of Wisconsin-Madison (Sept 14-15 2019).
4. | **European 2019 Talbot (Algebraic K-Theory)**, (July 7-13, 2019).
3. | **Derived Algebraic Geometry and its applications**, Mathematical Sciences Research Institute (MSRI) (March 25-29, 2019).
2. | **MIT 2018 Talbot Workshop (Model-independent theory of ∞ -categories)**, (May 27-June 2, 2018).
1. | **MIT 2017 Talbot Workshop (Obstruction theory for structured ring spectra)**, (May 21-27, 2017).